PART SPEC

DESCRIPTION: INVERTER,SIC1541

SPECIFICATION: 11.5V~12.6V,,48KHZ,0 +50°C,BULK

SECTION : VD R&D

PAGE																					
REVISION																					
	02	02	-	-	-	02	02	02	-	-	-										
	01	01	01	01	-	01	01	01	01	-	-										
	00	00	00	00	00	00	00	00	00	00	00										
SHEET	1	2	3	4	5	6	7	8	9	10	11										

REVISION	00	01	02																	

DRAWN: MYUNG-SOO NA	7202	SAMSUNG	DOC. NO.: BN44-00050ACB REF. NO.:
CHECKED:		SAMSUNG ELECTRONICS CO.,LTD. (All Rights Reserved.)	TOTAL PAGE 11
APPROVED: BONG-KYEOM KIM	7670		SIZE: A4 PAGE: 1

KQA-2029 F4R0('1996.10.25)

PART SPEC

REV.	DATE	CONTENTS	DRAWN	APPROVED
00	2001.02.07	initial release	M.S NA	B.K KIM
01	2001.09.19	* REVISION BY ECO NO: BN02001026A * REVISION BY ECO NO: BN02001038A	M.S NA	B.J KWAK
02	2002.12.24	* REVISION BY ECO ; BN020020B02 -. CHANGE VALUE OF R2,R30,R56) -. R2 ; (51K->47K),R30 ;(10K-> 20K),R56;(15K->20K)	M.S.NA	B.J.KWAK

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1.0 SCOPE

1.1 THIS DOCUMENT DEFINES FOR INVERTER, SIC1541,11.5~12.6V,48KHz

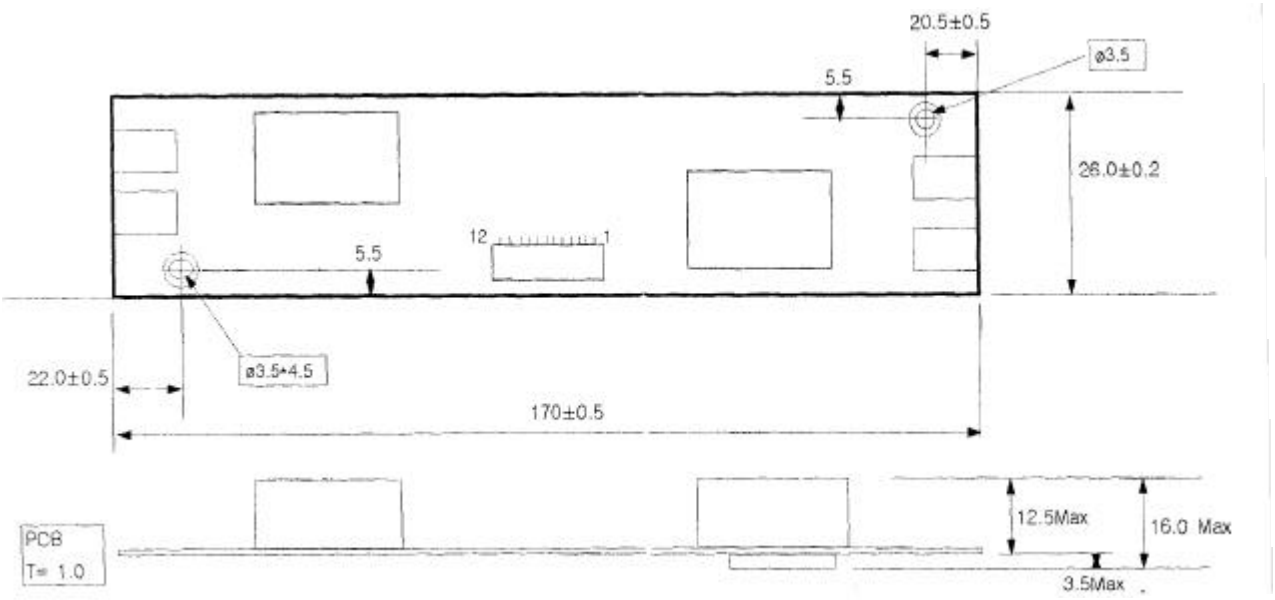
1.2 USAGE : BACKLIGHT 4 LAMP CCFL DRIVER INVERTER FOR SEC LCD

1.3 TYPE OF PACKAGE :

1.4 COATING :

2.0 RELATED DOCUMENTS

3.0 DIMENSIONS



4.0 REQUIREMENTS

4.1 MAXIMUM RATINGS 01

SYMBOL	PARAMETER	RATING	UNIT
V_{in1}	input voltage1	11.5~12.6	V
V_{IN2}	input voltage2	5.0	V
Topr	operating temperature	0 +50	°C
Tstg	storage temperature	-30 +80	°C
Hop	operating/storage humidity	10~90	%RH

4.2 CONTROL SIGNAL

PIN NO.	SYMBOL	STATUS	ACTION	REMARKS
CN1 #4	BKLT-ON	HIGH	LAMP(CCFL)-ON	2.4~5.25V
		LOW	LAMP(CCFL)-OFF	0.8V MAX.

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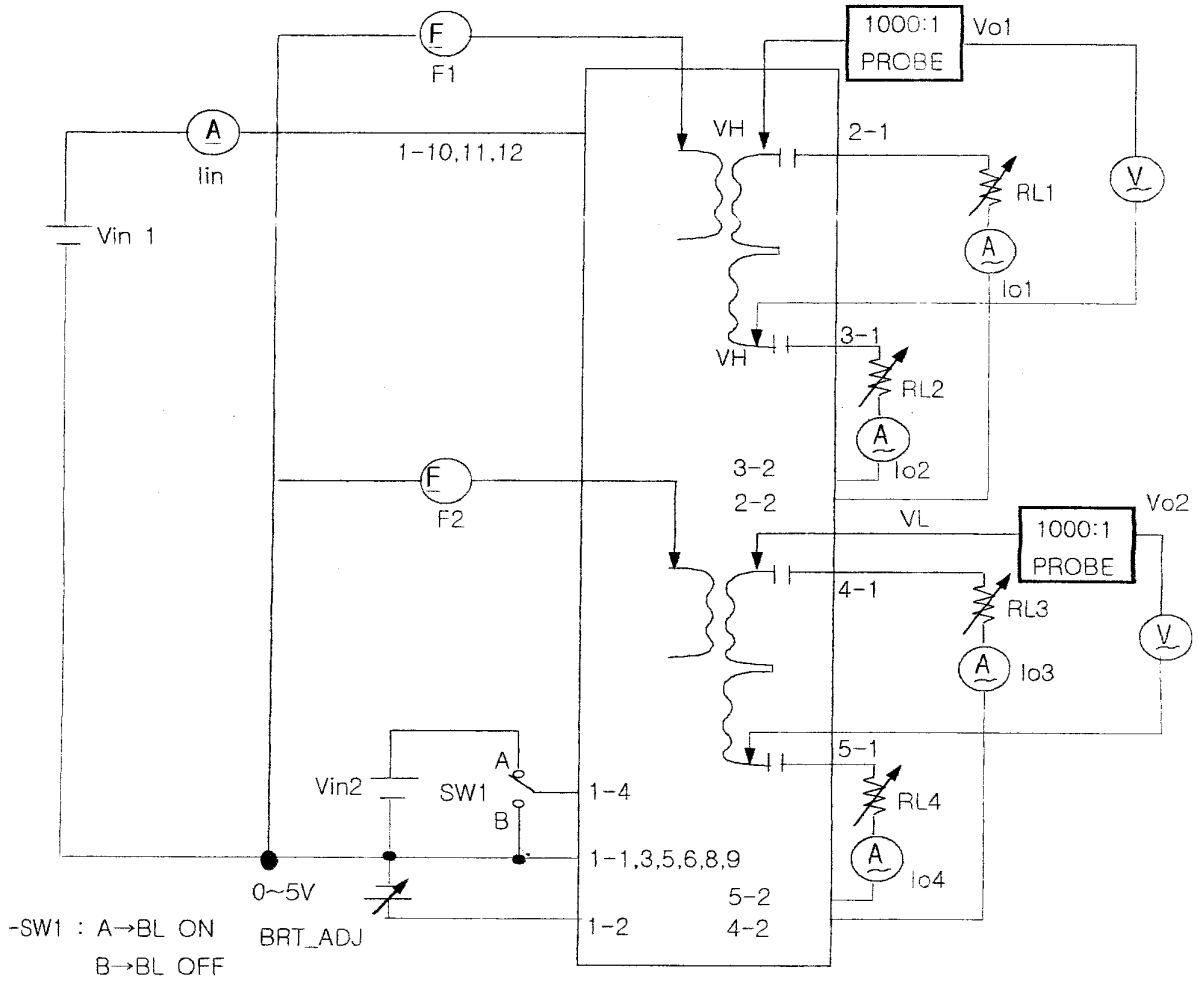
4.3 TEST CIRCUIT



4.4 INPUT/OUTPUT CHARACTERISTICS 01

ITEM	SYMBOL	CONDITION				SPECIFICATION			UNIT
		Vin1(V) (DC-IN)	Vin2(V)	BRT-ADJ	RL(kΩ)	MIN	TYP	MAX	
OUTPUT CURRENT	Io1,2(max)	11.5~12.6	5	0V	110±0.5	5.4	6.1	6.8	mArms
	Io1,2(min)	11.5~12.6	5	5V	110±0.5	1.6	2.6	3.6	
	Io3,4(max)	11.5~12.6	5	0V	110±0.5	5.4	6.1	6.8	
	Io3,4(min)	11.5~12.6	5	5V	110±0.5	1.6	2.6	3.6	
INPUT CURRENT	Iin	12	5	0V	110±0.5	-	1.7	2.1	ADC
FREQUENCY	F(1)	12	5	0V	110±0.5	40	48	56	kHz
FREQUENCY	F(2)	12	5	0V	110±0.5	40	48	56	kHz
DIMMING FREQUENCY (Ta=25°C)	FD	12	5	5	110±0.5	581	586	591	Hz

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5.0 FUNCTIONAL PIN DESCRIPTION

5.1 CN1 CONNECTOR 12505WR-12WR-1200(YEONHO)

PIN NO	SYMBOL	REMARK
1	GND	GND
2	BRT_ADJ	0 ~5V
3,5,6,8,9	GND	GND
4	BL ON/OFF	CCFL Drive SIGNAL(Active HIGHT)
7	N.C	NO CONNECTION
10,11,12	DC-IN	DC INPUT Power(12V)

5.2 CN2 CONNECTOR:35001WR-02P(YEONHO)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT
2	COLD	LOW

5.3 CN3 CONNECTOR :35001WR-02P(YEONHO)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT
2	COLD	LOW

5.4 CN4 CONNECTOR :35001WR-02P(YEONHO)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT
2	COLD	LOW

5.5 CN5 CONNECTOR :35001WR-02P(YEONHO)

PIN NO	SYMBOL	REMARK
1	HOT	HIGHT
2	COLD	LOW

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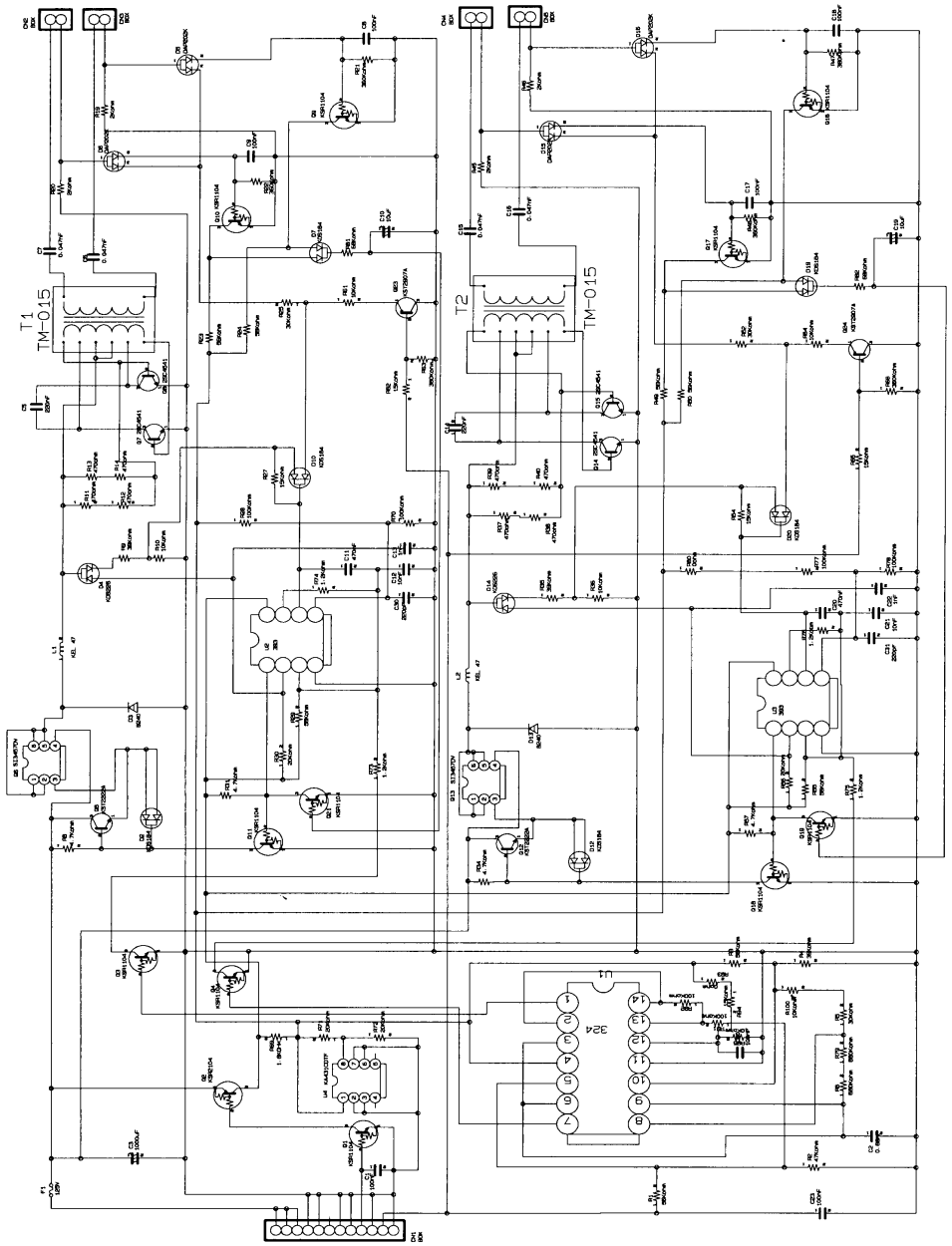
6.0 INTERNAL CIRCUIT DIAGRAM 02



7.0 PARTS LIST 02

LOCATION	NAME	1st		2nd	
		TYPE NO	MAKER	TYPE NO	MAKER
U1	IC	KA324	FAIRCHILD		
U2,U3	IC	KA393	FAIRCHILD	BA10393	ROHM
		KIA393	KEC	LM358	T.I
U4	IC	KIA431CD	SEC	TL431CD	SGS
Q1,3,4,6,10,16,17, 19,21	TR	KSR1104	FAIRCHILD	KRC104S	KEC
Q11,18	TR	KSR1104	FAIRCHILD		
Q2	TR	KSR2104	FAIRCHILD	KRA104S	KEC
Q5,12	TR	KST2222A	FAIRCHILD	KNT2222AS	KEC
Q23,24	TR	KST2907A	FAIRCHILD	KNT2907AS	KEC
Q6,13	TR	SI34557DV	VISHAY	FDC658P	FAIRCHILD
Q7,8,14,15	TR	2SC4541	TOSHIBA	2SD2403	NEC
		KTD1624C	KEC		
D2,7,10,12,19,20	DIODE	KDS184	KEC	DAN202K	ROHM
		SDS2838	AUK		
D3,13	DIODE	B240	DIODES.INC		
D5,6,15,16	DIODE	KDS181	KEC	DAP202K	ROHM
D4,14	DIODE	KDS226	KEC	DAN217	ROHM
		SDS7000	AUK		
C3	C-ELEC	TMQ,1000uF/16V	SECO		
C5,14	C-FILM	MPPS2A224K	SUNGHO	MPPS2A224K	SHINSHIN
C6,7,15,16	C-CERA	XC443F470KTC	MURUWA KUK	1808,3KV,47PF	PHILIPS
C13,22	C-CERA	CL21C102JBN	SEMCO		
C1,8,9,17,18,23,50	C-CERA	CL21B104KBN	SEMCO		
C10,19	TALTA	10uF/6.3V	SEMCO		
C11,20	MLCC	CL21B474KBN	SEMCO		
C12,21	MLCC	CL21B103KBN	SEMCO		
C30,31	MLCC	CL21C221JBN	SEMCO		
C2	MLCC	CL21C681JBN	SEMCO		
C32		NO MOUNT			
R27,30,54,56,62,65, 94	R-CHIP	RC1608J153	SEMCO		
R2	R-CHIP	RC1608J473	SEMCO		
R1,3,23,24,29 49,50,55	R-CHIP	RC1608J563	SEMCO		
R10,36,61,64,95	R-CHIP	RC1608J103	SEMCO		
R6,79	R-CHIP	RC1608J684	SEMCO		
R19,20,45,46	R-CHIP	RC2012J202	SEMCO		
R11~14,37~40	R-CHIP	RC3216J471	SEMCO		

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02

LOCATION	NAME	1st		2nd	
		TYPE NO	MAKER	TYPE NO	MAKER
R8,31,34,57	R-CHIP	RC2012J472	SEMCO		
R4,9,35	R-CHIP	RC1608J393	SEMCO		
R21,22,47,48,63,66	R-CHIP	RC1608J364	SEMCO		
R81,82	R-CHIP	RC1608J683	SEMCO		
R5,25,52	R-CHIP	RC1608J303	SEMCO		
R28,70,77,78,91,92	R-CHIP	RC1608J104	SEMCO		
R73,74,75,76	R-CHIP	RC1608J122	SEMCO		
R69	R-CHIP	RC3216J182	SEMCO		
R71,72,R30,56	R-CHIP	RC1608J203	SEMCO		
R80,R83,93	R-CHIP	RC2012J000	SEMCO		
R100	VR	10kΩ			
T1,2	TRANS	TM015	NAMYANG	TM015	DAESUNG
		TM015	KYUNGIN	TM015	SOOJUNG
L1,2	COIL	KEL47	KYUNGIN	KEL47	NAMYANG
F1	FUSE	SSQ3	BEL	451003	LITTEL
CN1	CONNECTOR	12505WR-12A00	YEONHO	53261-1290	MOLEX
CN2,3,4,5	CONNECTOR	35001WR-02P	YEONHO	SM02B-BHS	JST
PCB	PCB	SIC1541	YONGEUN	SIC1541	

8.0 RELIABILITY SPECIFICATION

NO	ITEM	CONDITION AND METHOD
1	HIGH TEMPERATURE STORAGE TEST	TEMP.;70 °C DURATION: 500 hrs
2	LOW TEMPERATURE STORAGE TEST	TEMP.;40 °C DURATION: 500 hrs
3	HIGH TEMPERATURE HIGH HUMIDITY STORAGE TEST	TEMP.;40 °C ,HUMIDITY:95%RH DURATION: 500 hrs
4	HIGH TEMPERATURE HIGH HUMIDITY OPERATION TEST	TEMP.;40 °C ,HUMIDITY:95%RH DURATION: 1000 hrs
5	THERMAL SHOCK TEST	TEMP;-30 °C ↔ 70 °C, 250 CYCLE (30 MINUTE),(30 MINUTE)
6	VIBRATION TEST	AMPLITUDE;1.5mm,FEEQUENCY;10~55Hz,POSITION; TREE PERPENDLCULAR PLANES,DURATION;1000 hrs
7	HIGH TEMPERATURE OPERATION TEST	TEMP;50 °C DURATION;72 hrs
8	LOW TEMPERATURE OPERATION TEST	TEMP; 0 °C DURATION;72 hrs

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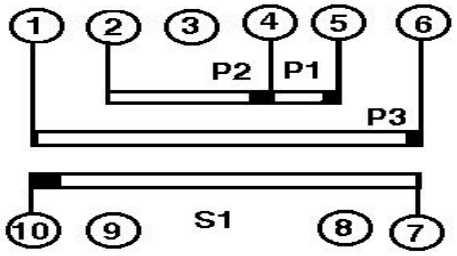
9.0 DETAIL SPECIFICATION FOR KEY PARTS

9.1 TRANS (TM-015)

9.1.1 WINDING SPEC & ELECTRICAL CHARACTERISTICS



SYMBOL& WINDING	WIRE	TURNS	INDUCTANCE	CONDITION
P1 (#5-#4)	1UEW 0.35¢	7	31.5 uH±10%	AT 1KHZ 1Vrms
P2 (#4-#2)	1UEW 0.35¢	7		
P3 (#6-#1)	1UEW 0.15¢	2	0.8uH REF.	
S1 (#10-#7)	1UEW 0.04¢	1750(260*6+190)	440mH±15%	

9.1.2 MATERIAL LIST (TM-015)

NO.	COMPONENT	MANUFACTURE COMPONENT	NAME OF MATERIAL	MANUFACTURER OF MATERIAL	UL FILE NO.
1	CORE	SAM SUNG CORNING CO., LTD.	SL-2 EEA 17.7A		
		SAM WHA ELECTRONICS CO., LTD.	PL-7 EFD 1820		
		ISU CERAMICS CO., LTD.	PM7 EFD 1820		
2	BOBBIN	JO KWANG ELECTRONICS CO., LTD.	(94V-0) SB EE18-4 LCP UL	SUMITOMO CHEMICAL CO., LTD.	E 54705 (M)
3	WIRE	DONG YANG ELECTRONICS IND CO., LTD.	1 UEW 0.35Ø (AWG #27)		E 102761(S)
4			1 UEW 0.15Ø (AWG #35)		
5			FUEW 0.04Ø (AWG #44)		
6	INSULATION TAPE	DUCK SUNG TAPE CO., LTD. (Cat No. DTS-204)	POLYESTER FILM TAPE 0.025 mm X 13.5 mm		E 105147(S)
7	CORE FIXING TAPE		POLYESTER FILM TAPE 0.025 mm X 5.0 mm		
01 8	INSULATOR	SKC LTD	PETP FILM (SR55) 0.075mm(T) MIN		E 74359 (S)
9	WAX	MICRO WAX 180	MOBIL or ESSO		

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9.2 DETAIL MATERIAL LIST FOR KEY PARTS (SAFETY)

SYMBOL	NAME	TYPE NO.	MANUFACURER	DESCRIPTION
F1	FUSE	451002	LITTLE FUSE INC	UL FILE NO:E10480 CSA FILE NO:LR29826
		SSQ2	BEL	UL FILE NO:E20624 CSA FILE NO:LR39772
PCB	PRINTED CIRCUIT BOARD	FR-4	KIJOO	UL FILE NO:E11136
			YOUNG EUN ELECTRO	UL FILE NO:E173507
CN1	CONNECTOR	53261-1290	MOLEX	NYLON 4/6 UL94V-0
		1205WR-12A00	YEUNHO	NYLON 4/6 UL94V-0
CN2	CONNECTOR	SM02B-BHS	JST	PA-46 UL94V-0
		35001WR-02P	YEONHO	PA-46 UL94V-0
T1	TRANSFORMER	TM-015	DAISUNG TELECOMMUNICATION	CLASS A (105°C)
			NAMYANG ELECTRONICS	CLASS A (105°C)
			KYUNGIN ELECTRONICS	CLASS A (105°C)
			DAISHINDENKEN	CLASS A (105°C)
	INSULATOR	PC	TEIJIN CHEMICALS	UL FILE NO:E50075(M)

10.0 PACKING REQUIREMENTS

BULK

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PART SPEC

SAMSUNG P/N	VENDOR #1 P/N	VENDOR #2 P/N	VENDOR #3 P/N	VENDOR #4 P/N
BN44-00050A	SIC1541			